Anyone for instant yams?

by David Spurgeon

Inflation, bad weather and the resulting instability of world food markets in the past couple of years have left many countries wishing they could be self-sufficient in food supplies, or at least less dependent on imports. The Caribbean countries are no exception, and here there is evidence that something is being done about it.

A symbol of the growing desire for self-sufficiency in food and to export products other than the traditional sugar crop is the Instant Dehydrated Yam – the West Indian equivalent of instant mashed potatoes. Produced at a pilot plant in Barbados – where they are cooked, mashed and drum-dried after being rolled into a thin film, then broken and packed – the yams have been test-marketed in Europe, North America and the Caribbean with fair success.

The purpose is to make good use of abundant native root crops. Potatoes do not grow well in some West Indian islands, but there are plenty of yams, and much of the crop would go to waste if such uses were not found for it. In addition, such a product, if it were successful, would tend to replace imported products with indigenous ones.

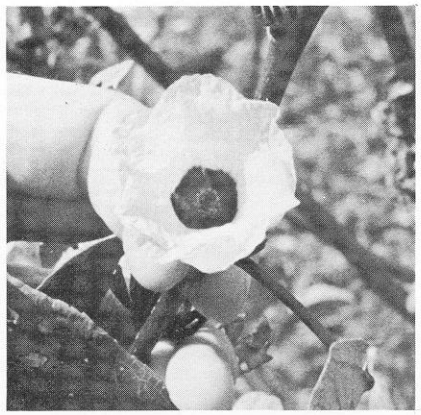
Dehydrated yams are just one example of this general approach. During a recent visit to the University of the West Indies Trinidad campus I was told of the following as well:

– A corn-flakes-like breakfast food made from sweet potato flour enriched with soya protein.

– A composite flour for breadmaking made with 20 percent yams or 15 percent sweet potatoes.

– A cordial called Sorrel, made from the calix of the hibiscus, which could be used in plain or carbonated drinks. A Sorrel drink has been popular for years around Christmas time, but previously could only be made seasonally because of the blooming time of the plant's flower. The cordial has been obtained for year round use by means of flash dehydration.

Trinidad's reliance on food imports goes back a long way and is extremely heavy. In the days of slavery, even the slaves' food was brought in from their native countries. Today, most meat is imported, except recently pigs and poultry, as is all wheat for making flour. Fifty to 60 percent of the raw materials for dairy products processed on the island are imported, and 80-90 percent of the pork for making ham, bacon and sausages.



Sorrel flower: used in making Christmas cordial.

Most surprising is the situation regarding non-citrus fruits and vegetables. There are four fruit and vegetable canning plants in Trinidad and Tobago, which produce mainly tomato ketchup, mixed vegetables, jams, jellies, marmalades, fruit juices and nectars – yet 80 percent of the raw materials for making these products are imported. The 20 percent that are of local origin are largely bought on the open market, with little control of varietal types or quality. One explanation offered was that, because fruits are usually considered products for affluent markets, and because they grow practically wild, Trinidadians pay no attention to them as domestic food crops.

Dean C. K. Robinson of UWI's faculty of agriculture says the chief problem with agricultural production in Trinidad is that people don't want to work in agriculture because of the low wages and low prices for farm produce. The oil fields and industry are more attractive. Estate owners find it difficult to pay the wages being asked and the small farmer finds it difficult to survive. But one difficulty in increasing reliance on indigenous products has other roots: "We have acquired a taste for wheat flour and it is extremely difficult to get that changed."

So in addition to developing new food products, agriculturalists and food specialists are trying to promote the consumption of indigenous crops generally rather than imported ones. Thus attention is being given to increased production and processing of crops like pigeon pea, and the use of root crops as animal feed in place of more expensive imported feed grains.

But the program to increase food production goes beyond simply supplying the domestic market. Prof. E. A. Tai, head of UWI's crop science department, in a paper with P. H. Haynes, says: "Food production has been fighting a losing battle in some areas of the world as is exemplified by the current situation in India (it could happen here, too), and therefore the aim should best not be restricted to growing for local consumption only; export of produce surplus to our needs should be an important consideration so that full advantage may be taken of greater efficiency of production based on results of research. We can then be of help to others while helping ourselves."

Last year, Dr Eric Williams, Prime Minister of Trinidad and Tobago, reported a new aspect to the program: turning over 20,000 acres of sugar lands in 20-acre lots to farmers for food production. In addition, swamp lands in sugar areas were being released for rice production, some marginal sugar lands freed for food production, and some crown lands not in sugar let go for food production.

The basic problem of low agricultural production is being worked on by a number of investigators in a variety of projects. One, called the grain legume program, was begun in 1972. Its aim is to achieve year-round production of pigeon peas, and to make mechanical harvesting possible. The program is funded by the IDRC, Britain's Overseas Development Administration, the West Indian governments through the Regional Research Institute, and the UWI grants committee.

Pigeon peas grow easily in Trinidad; the plant does not respond to fertilizer and can be grown without pesticides. All the small farmer has to do is keep it free of weeds. The plants can be seen growing almost wild on most small landholdings (one-half to 10 acres) and the occupant of the land consumes the peas as a fresh vegetable, marketing any surplus locally or selling it to the canning fac-

Photos: David Spurgeon

tories. But the amounts grown locally cannot meet the demand, and as a result large quantities of dry peas are imported. More than 600 additional acres of peas would be required to meet the processing plants' demands, it has been estimated, and such production would generate $300,000 annual income for farmers, $500,000 value added in processing, and $500,000 in export earnings.

There is only one pigeon pea crop a year: the land is seeded in June or July and harvested in December. Pigeon peas are one of the few sources of protein for the poor in Trinidad, and thus are an important crop. There is also a market for the canned product abroad and it is estimated that present exports could be doubled.

However, to increase the output of processed peas, mechanical harvesting would be necessary, because the cost of hand labour would be prohibitive. The UWI's mechanical engineering department has thus set about designing a mechanical harvester that could be locally made.

In order to use mechanical harvesting, however, the plant's shape has had to be changed genetically to produce a small, semi-herbaceous plant rather than a large or medium-sized shrub. As it grows normally, the plant is a woody-stemmed shrub four to five feet tall, with many branches along which peas are produced. The plant that has been developed for mechanical harvesting produces peas at the ends of the branches instead of along them. The idea is to condense the cropping period and to obtain successive crops.

Underproduction of the pigeon pea in Trinidad is due to its being grown almost exclusively on small plots, and involving a high labour cost to harvest. The processing plant is under-supplied because farmers can get a higher price for fresh peas.

Another difficulty with the pigeon pea crop is in marketing. Processing plants pay 13 cents a pound to the farmer, just above the government's guaranteed floor price of 12.5 cents. But the farmer can get up to 40 cents a pound for fresh peas in the market – when he can sell them that way, because the market is uncertain. The farmers thus try to sell the peas fresh on the market if at all possible – sometimes even if they have a contract for their crop with the processors.

From the processing plant's point of view, estimating the size of the crop is difficult: many small farmers grow the peas without its being known until they show up with peas for sale. What is needed is a more efficient system: larger-scale farms, more efficient manual harvesting, mechanical harvesting and better organized marketing or contracting arrangements. For home use, the pigeon pea can be harvested over a period of time, but this makes the operation costly because it is done repeatedly.

Paradoxically, one of the uses for the potentially larger pigeon pea crop would be to make dhal, which at present is imported from India in substantial quantities. The Indian dhal is made from chick peas, but it could be made entirely from pigeon peas, thus obviating the need for imports.

The number and variety of agricultural problems faced by Trinidad are of course multiplied when seen from the point of view of the whole Commonwealth Caribbean, but these countries have certain attributes in common. This has led a group in the UWI to look at the question of research priorities for the whole area by examining the one country's situation in depth. The country chosen as the subject of the model was Barbados.

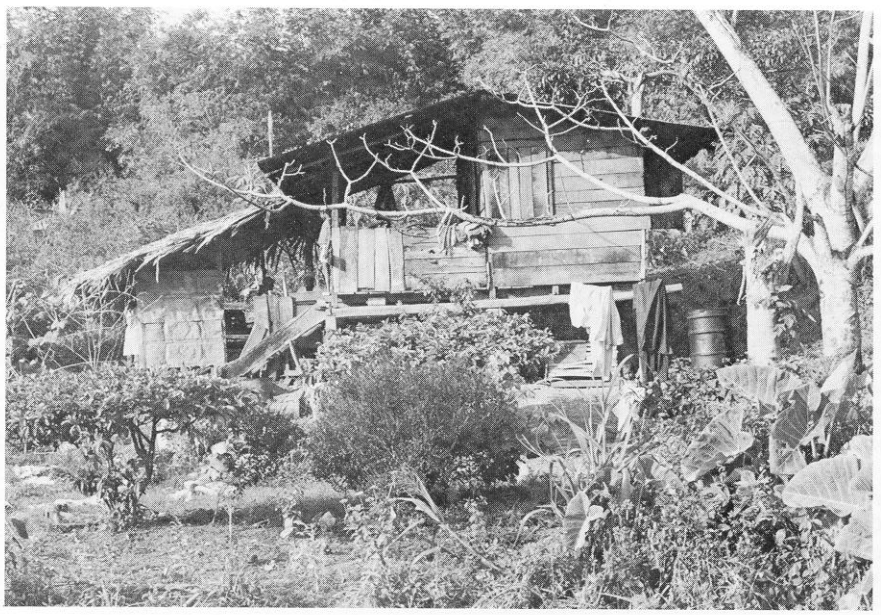
Under the direction of Prof. D. T. Edwards of the University's economics department, the group is trying to establish the relative economic potential of alternative crops and animals within the framework of overall agricultural resource use. This information will then assist researchers in defining research priorities.

But the program will not stop there: it will also examine the response of the agricultural economy to price and other market factors, which will point to research priorities in farm management, markets and agricultural policy as well as in agricultural science or technology.

The new orientation in West Indian agricultural research gained momentum only during the past 10 years or so. The trend in the university away from the traditional curiosity-oriented approach of the individual faculty member to a more organized, problem-oriented one, now seems fully established. What the results will be for the economies of West Indian countries canot be foreseen, but some are hopeful.

"We see signs," said Dr Tai, "of encouraging optimism."

Subsistence farming in Trinidad: what is needed is a more efficient system.



Pigeon peas grow easily in Trinidad.